



SYSTEMS ENGINEERING

Revitalizing Systems Engineering

Analysis of major Department of Defense (DoD) acquisition programs, indicates a direct link between shortfalls in cost control and ineffective application of Systems Engineering (SE) on programs. Consequently, DoD has made the revitalization of SE a priority initiative.

“Shortfalls in cost control are directly linked to ineffective application of Systems Engineering”

Five Strategic Elements

The Office of the Deputy Under Secretary of Defense for Acquisition and Technology (DUSD (A&T)), Directorate of Systems and Software Engineering, has developed and implemented a multifaceted approach to reinvigorate SE, encompassing five strategic elements:

Policy

DUSD (A&T) has issued three SE policy memoranda ([February 20, March 30](#) and [October 22, 2004](#)) that mandate:

- ★ Programs use an integrated SE approach documented in an SE Plan (SEP) for Milestone Decision Authority (MDA) approval at each Milestone
- ★ The Office of the Secretary of Defense must review SEPs for major acquisition programs in acquisition categories (ACAT) ID and IAM
- ★ Assignment of SE leadership to oversee the implementation of SE within each Program Executive Office or equivalent organization
- ★ Event-driven technical reviews with participation by technical experts from outside the program (i.e. peer review)

Program Support

- ★ Review Program Protection Planning, Acquisition Cybersecurity safeguards, and software management practices
- ★ Support both the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics, and Networks and Information Integration Overarching Integrated Product Team leads, by conducting ACAT ID Program Support Reviews and reviewing SEPs, to gain key insights into technical issues and reduce acquisition risk
- ★ Provide technical context for senior leadership's individual program decisions

Guidance

SE policy has been supplemented with key enabling guidance including:

- ★ [SEP Preparation Guide](#) (version 2.0 released October 2007) and accompanying technical planning frameworks for each acquisition life cycle phase
- ★ SE and Integrated Test and Evaluation chapters included in the [Defense Acquisition Guidebook](#)

Other new and revised guides have also been published including:

- ★ [Integrated Master Plan/Schedule](#)
- ★ [Reliability, Availability, and Maintainability](#)
- ★ [Risk Management Guide for DoD Acquisition](#)
- ★ [Integrating Systems Engineering into DoD Acquisition Contracts](#)
- ★ [CMMI\(r\) for Acquisition \(CMMI-ACQ\) Primer](#)
- ★ [SE Guide for Systems of Systems](#)
- ★ [Engineering for System Assurance](#)

Education and Training

- ★ Guide DAWIA SE, PQM, and T&E curricula
- ★ Developed four new Defense Acquisition University SE courses
- ★ Developed numerous new continuous-learning courses
- ★ Developed new Systems Planning, Research, Development and Engineering (SPRDE) career certification track for Program Systems Engineers

Outreach

- ★ Partnering with industry, associations, and academia to disseminate sound SE practices
- ★ Expanding efforts to proactively reach programs through focused support

